# **Technical and Functional Requirements**

# WAG 3 Staging, Storage, Sizing, and Treatment Facility

Prepared for: U.S. Department of Energy Idaho Operations Office Idaho Falls, Idaho



Form 412.14 07/24/2001 Rev. 03

### Idaho National Engineering and Environmental Laboratory

Document Owner:

Environmental Restoration Program

Restoration

(208) 526-0362

Document Control Center:

412.09 (11/05/2001 - Rev. 06)

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Change Number: 67279

Effective Date: 03/07/2002

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### 1. INTRODUCTION

The U.S. Department of Energy Idaho Operations Office (DOE-ID), Environmental Protection Agency (EPA), and Idaho Department of Environmental Quality (IDEQ) authorized remedial design/remedial action (RD/RA) for the Idaho Nuclear Technology and Engineering Center (INTEC) in accordance with the Waste Area Group (WAG) 3, Operable Unit (OU) 3-13 Record of Decision (ROD) (DOE-ID 1999).

The selected remedy in the OU 3-13 ROD for some Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation wastes generated within the INTEC boundaries is removal and disposal on-Site in the INEEL CERCLA Disposal Facility (ICDF). Wastes from Idaho National Engineering and Environmental Laboratory (INEEL) CERCLA sites, other than INTEC, can also be disposed in the ICDF, providing the waste meets the applicable Waste Acceptance Criteria (WAC).

The ICDF, which will be located south of INTEC and adjacent to the existing percolation ponds, will be an on-Site, engineered facility, meeting Department of Energy (DOE) Order 435.1, Resource Conservation and Recovery Act (RCRA) Subtitle C (42 USC 6921), Idaho Hazardous Waste Management Act (HWMA) (HWMA 1993), and Toxic Substances Control Act (TSCA) polychlorinated biphenyl (PCB) landfill design and construction substantive requirements (15 USC 2601). The ICDF will include the necessary subsystems and support facilities to provide a complete waste disposal system.

The major subsystems and support facilities of the ICDF are the disposal cells; an evaporation pond; and the Staging, Storage, Sizing, and Treatment Facility (SSSTF). The disposal cells, including a buffer zone, will cover approximately 40 acres, with a disposal capacity of about 510,000 yd<sup>3</sup>. The SSSTF will be designed to provide centralized receiving, staging, storage, inspection, and treatment necessary to stage, store, and treat incoming waste from various INEEL CERCLA remediation sites prior to disposal in the ICDF or shipment off-Site. All SSSTF activities shall take place within the WAG 3 area of contamination (AOC) to allow flexibility in managing the consolidation and remediation of wastes without triggering land disposal restrictions (LDRs) and other applicable or relevant and appropriate requirements (ARARs) in accordance with the OU 3-13 ROD. Only low-level, mixed low-level, hazardous, and limited quantities of TSCA wastes will be disposed of at the ICDF.

Only INEEL on-Site CERCLA wastes meeting the Agency-approved WAC will be accepted at the ICDF. An important objective of the WAC will be to ensure that hazardous and radioactive wastes disposed in the ICDF will not result in exceeding groundwater quality standards in the underlying aquifer. Acceptance criteria will include restrictions on contaminant concentrations based on groundwater modeling with the goal

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of preventing future risk to the Snake River Plain Aquifer (SRPA). Wastes managed at the ICDF will also meet the NESHAP and Clean Air Act ARARs and corresponding operational limitations.

The current SSSTF work scope consists of those activities required for ICDF direct disposal implementation. These activities include the utilities, roads and grounds improvements, truck and container decontamination facilities, scales, waste receiving and disposal data control systems, administrative facilities, and related security and safeguard structures needed to support the ICDF landfill and evaporation pond construction, and direct disposal operations. In addition, limited treatment capabilities will be available to treat small volumes of waste and secondary waste streams generated during ICDF Complex (ICDF landfill, ICDF evaporation pond, and SSSTF facilities) operations.

Further investigation of known or potential waste streams has not resulted in the need for a larger treatment facility than is currently planned in the RD/CWP. If, in the future, the need for a large or additional type of treatment is identified, scoping would be initiated along with the subsequent development of FFA/CO design and operational documents. If the additional treatment capacity or type is identified, a modification to the OU 3-13 RD/RA SOW will be developed and submitted to the Agencies for incorporation.

### 1.1 Staging, Storage, Sizing, and Treatment Facility Identification

The SSSTF will be a general-purpose ICDF support facility designed to provide centralized receiving, inspection, and treatment necessary to stage, store, and treat incoming waste from various INEEL CERCLA remediation sites prior to disposal in the ICDF or shipment off-Site. The facility will consist of an administrative building, a decontamination/treatment building, a contaminated equipment storage pad adjacent to the decontamination building, and associated treatment equipment. Operations at the facility will include chemical/physical treatment to prepare ICDF wastes to meet Agency-approved WAC and RCRA LDRs.

Raw water, potable water, fire water, sanitary sewer, telephone, alarm, and electrical service utilities will be installed to support the SSSTF. Each of these services will connect to a supply point inside the INTEC area except the electrical service, which will be connected to a power management service line outside the INTEC area.

The minimum infrastructure stage of the project includes the utility connections, roads and grounds improvements, truck and container decontamination facilities, scales, waste receiving and disposal data control systems, administrative facilities, and related security and safeguard structures needed to support the ICDF landfill

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and evaporation pond construction, and direct disposal operations. In addition, limited treatment capabilities will be available to treat small volumes of solid and aqueous waste and secondary waste streams generated during SSSTF and ICDF operations.

### 1.2 Limitations of the Technical and Functional Requirements Document

This T&FR document defines the design requirements for the SSSTF to the extent the requirements are known during its development. It is not intended to define analysis or evaluation tasks that may be necessary as part of the design activity. Should these analysis efforts identify additional requirements necessary to guide or constrain the design, they will be added to the T&FR document via the program change control process. This document does include the function of the existing Staging and Storage Annex (SSA).

This T&FR document is not intended to identify design or operational criteria associated with ICDF Complex components other than the SSSTF, i.e., the ICDF evaporation pond and ICDF landfill. Refer to the appropriate documentation governing these facilities.

### 1.3 Ownership of the Technical and Functional Requirements Document

The T&FR document is the product of the combined activities of the SSSTF project team. The WAG 3 project engineer has the ultimate responsibility for the content and approval of the document. Updates to this T&FR will be processed in accordance with the SSSTF project and Bechtel BWXT Idaho, LLC (BBWI) policies and procedures.

### 1.4 Definitions/Glossary

*Component.* Item of equipment, such as pump, valve, or relay, or an element of a larger array, such as computer software, length of pipe, elbow, or reducer.

*Environmental Requirement*. A requirement related to the environment and, specifically, to environmental permitting.

External Staging/Storage. An area designated for waste staging/storage that is open to the outside environment (e.g., an uncovered pad).

Internal Staging/Storage. An area designated for waste staging/storage that is inside a covered facility (e.g., inside a building).

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Low-Volume Anomalous Waste. For purposes of SSSTF design, low-volume anomalous waste is defined to be waste segregated or created during normal SSSTF waste stream processing that is not acceptable for disposal in the ICDF.

Mission-Critical Requirement. A requirement necessary to prevent or mitigate substantial interruptions of facility operations or severe cost or other adverse impacts, or those that are necessary to satisfy DOE programmatic mission considerations.

Other Requirement. A requirement that does not fit in the safety class, safety significant, other safety, environmental, or mission-critical classifications.

Other Safety Requirement. A requirement, not identified as safety class or safety significant, but necessary for a system, structure, and component (SSC) to perform functions considered important to overall facility safety and as part of worker safety or the defense-in-depth safety basis for the facility.

*Processing (of waste)*. For purposes of the SSSTF design, processing of waste will include

- Receipt documentation and inventory tracking
- Weighing of material
- Verification of material (if necessary)
- Sizing of material (if necessary)
- Treatment of material (if necessary)
- Interim storage of material (if necessary)
- Transportation of material for disposal
- Generation of waste processing records
- ICDF waste placement documentation and tracking.

Safety Class. A designation applied to SSCs (safety class SSCs) whose failure could adversely affect the environment or safety and health of the public, as identified by safety analyses.

Safety Class Requirement. A requirement identified as necessary for a safety class SSC to accomplish its safety function.

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Safety Significant. A designation applied to SSCs (safety significant SSCs) not designated as safety class SSCs, but whose preventive or mitigative function is a major contributor to defense-in-depth, such as prevention of uncontrolled material releases and/or worker safety as determined from hazard analysis.

Safety Significant Requirement. A requirement identified as necessary for a safety significant SSC to accomplish its safety function.

Special Waste. Waste accepted for disposal that is not compatible with predetermined operating processes.

Staging. Waste managed on a temporary basis prior to treatment or disposal.

Storage. Waste managed on a long-term basis prior to treatment or disposal.

*Structure.* Elements that provide support or enclosure, such as buildings, freestanding tanks, basins, dikes, and stacks.

System. Collection of components assembled to perform a function, such as heating, ventilating, and air conditioning (HVAC) systems, control systems, utility systems, reactor cooling systems, or fuel storage systems.

TRU Waste. Waste containing more than 100 nCi/g of alpha-emitting transuranic (TRU) isotopes with half-lives greater than 20 years except for (1) high-level waste (HLW), (2) waste that DOE determines, with concurrence of EPA, does not need degree of isolation required by 40 CFR 191, or (3) waste that the Nuclear Regulatory Commission (NRC) approves for near-surface land disposal in accordance with 10 CFR 61.

### 1.5 Acronyms

The acronyms referenced elsewhere in this document are defined in the following list:

ALARA as low as reasonably achievable

AOC area of contamination

ARAR applicable or relevant and appropriate requirement

BBWI Bechtel BWXT Idaho

CERCLA Comprehensive Environmental Response, Liability, and

Compensation Act

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**CFA** Central Facilities Area **CFR** Code of Federal Regulations **CWID** CERCLA Waste Inventory Database **DACR** digital alarm communication receiver DACT digital alarm communicator transmitter DOE Department of Energy (U.S.) DOE-Idaho Operations Office DOE-ID **EDF** Engineering Design File **EPA** Environmental Protection Agency **Environmental Restoration** ER ESH&Q environment, safety, health, and quality HLW high-level waste **HVAC** heating, ventilation, and air conditioning **HWMA** Hazardous Waste Management Act **ICDF** INEEL CERCLA Disposal Facility **IDEQ** Idaho Department of Environmental Quality IDW investigation-derived waste **INEEL** Idaho National Engineering and Environmental Laboratory **INTEC** Idaho Nuclear Technology and Engineering Center LDRs land disposal restrictions **NPH** natural phenomenon hazard **NRC Nuclear Regulatory Commission** OU operable unit **PCB** polychlorinated biphenyl QA quality assurance RadCon radiological control RCRA Resource Conservation and Recovery Act remedial design/remedial action RD/RA ROD Record of Decision

Snake River Plain Aquifer

Staging and Storage Annex

system, structure, and component

SRPA

SSA

SSC

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SSSTF STD	Staging, Storage, Sizing, and Treatment Facility standard
T&FR	technical & functional requirements
TRU	transuranic
TSCA	Toxic Substances Control Act
TSR	technical safety requirement
WAC	Waste Acceptance Criteria
WAG	waste area group
WTS	Waste Tracking System

### 1.6 Key Assumptions

The OU 3-13 ROD defines the scope of work for the SSSTF activities. The assumptions shown in Table 1.6-1 were created to further clarify and/or define limiting factors and conditions associated with that scope.

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Table 1.6-1. Key assumptions.

ID	Assumption Description	Drives Requirement Number
A.	The SSSTF will not be designed or operated to treat TRU waste.	N/A
A-1	The SSSTF will be able to store TRU waste on a case-by-case basis until an acceptable off-Site disposal location is identified.	N/A
В.	High-temperature organic destruction technologies (e.g., incineration) will not be used. Was not considered a cost-effective treatment as determined in the ROD.	N/A
C.	Deleted.	N/A
D.	The SSSTF will be designed to store non-contact-handled waste.	029 (p. 21)
E.	The predominant form of waste will be bulk soil arriving in dump trucks or roll-on/roll-off containers. Other forms of shipment are also acceptable.	035 (p. 22)
F.	The SSSTF will routinely treat waste in yearly campaigns that begin in March and end in November; however, the facility will be operational the remainder of the year. Packaging for off-Site disposal and minimal waste acceptance for storage will be required year round. Waste monitoring and management operations will be required year round.	027 (p. 29) 049 (p. 30)
G.	All secondary waste generated at the ICDF and SSSTF that meets the WAC or can be treated to meet the ICDF landfill WAC will be disposed of in the ICDF landfill. Waste not meeting this criteria will be disposed off-Site in accordance with the Off-Site Rule in accordance with 40 CFR 300.440.	002 (p. 20) 014 (p. 24) 043 (p. 25) 044 (p. 25)
H.	Deleted.	
I.	The SSSTF design will be based on 10-hr-per-day and 4-days-per-week of operation. The treatment and landfill disposal functions will be designed based on 150 days of operation per year.	028 (p. 30)

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Table 1.6-1. (continued).

ID	Assumption Description	Drives Requirement Number
J.	Analytical capabilities at the SSSTF will be limited to screening methods (e.g., HNu, pH, ro2a) required to verify waste shipment profiles. Laboratory analysis for waste characterization will be performed at an external facility.	034 (p. 22)
K.	Waste arriving at the SSSTF will be limited to one waste profile per container.	034 (p. 22)
L.	Generating sites will provide a waste profile for each waste container prior to shipment to the SSSTF.	034 (p. 22)
M.	Quality assurance (QA) verification of incoming waste profile will be performed.	034 (p. 22)
N.	Waste requiring sizing will either be size-reduced at the CERCLA remediation site so that it can be processed at the SSSTF, or it will be disposed of directly in the ICDF without treatment if it meets the ICDF WAC.	002 (p. 20)
O.	Deleted.	
P.	Interim storage or staging of solid and liquid waste will be provided prior to SSSTF construction. Details of interim storage or staging (SSA) are included in the SSSTF Title II design.	N/A
Q.	The SSSTF will not treat soil/debris that is above the 40 CFR 268.48 standards.	N/A
R.	SSSTF utility connections will be provided by INTEC to the extent practical with the exception of electrical power.	018 (p. 33) 019 (p. 33) 020 (p. 33) 021 (p. 34) 023 (p. 34) 024 (p. 34)
R-1	Electrical power will be provided by a power management service line outside of INTEC.	N/A
S.	Deleted.	

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Table 1.6-1. (continued).

ID	Assumption Description	Drives Requirement Number
Т.	The CERCLA Waste Inventory Database (CWID) (DOE-ID 2000a) is based on Appendix C of the <i>Remedial Investigation/Feasibility Study</i> (DOE-ID 1997) and the ROD (DOE-ID 1999). The CWID was used to generate a design basis document, EDF-ER-264.	001 (p. 20) 006 (p. 21) 016 (p. 21) 010 (p. 23) 039 (p. 23) 015 (p. 25) 043 (p. 25) 052 (p. 30)
U.	Deleted.	
V.	Facility design life will be 30 years. This is consistent with DOE standard practices. The facility design life of the administration trailer will be 10 years.	005 (p.20)
W.	The predominant vehicle for liquid waste transfer to the facility will be tanker truck, but other forms of containers are also acceptable.	N/A
X.	Aqueous waste will be staged at the SSA or other ICDF Complex areas, or disposed of directly in the ICDF evaporation pond.	012 (p. 24)
Y.	Nonaqueous waste with TRU constituents exceeding 10 nCi/g concentrations will be staged and/or stored at the SSA or ICDF Complex areas until final disposition is determined.	N/A

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### 2. OVERVIEW

The following paragraphs provide a brief description of the SSSTF functions.

### 2.1 Staging, Storage, Sizing, and Treatment Facility Functions

An SSSTF/ICDF functional block flow diagram is provided in Figure 2.1-1. The diagram defines the major functions and subfunctions of the SSSTF/ICDF Complex and flow of waste from an operational perspective. Some of the blocks in the diagram may be implemented utilizing capabilities of the SSA or other facilities. Examples of such operational functions not covered by design text include liquid waste storage, waste sizing, and liquid waste treatment.

### 2.1.1 Administrative Function

The administrative function will provide all capabilities necessary to perform administrative operations. These capabilities include weighing and verifying waste coming into or going out of the facility, determining waste disposition, administering treatment verification and other quality activities, processing and maintaining required records associated with the waste disposition, and performing overall Complex management functions.

The administrative function will be able to weigh and track the WAG waste and materials entering and exiting the facility. The weighing scale will be designed to accommodate a single truck containing either bulk waste, loaded roll-on/roll-off containers, or flat-bed trucks with other types of containers. Once the shipments have been weighed, monitored, treated (if necessary), and verified, pertinent information will be entered into the waste tracking system.

The administrative offices and operations crew quarters will be integrated into the SSSTF design. A structure to house personnel critical to the operation of the SSSTF and ICDF will be located adjacent to the work areas. The space will accommodate operational personnel; administrative personnel; support personnel; and environment, safety, health, and quality (ESH&Q) personnel.

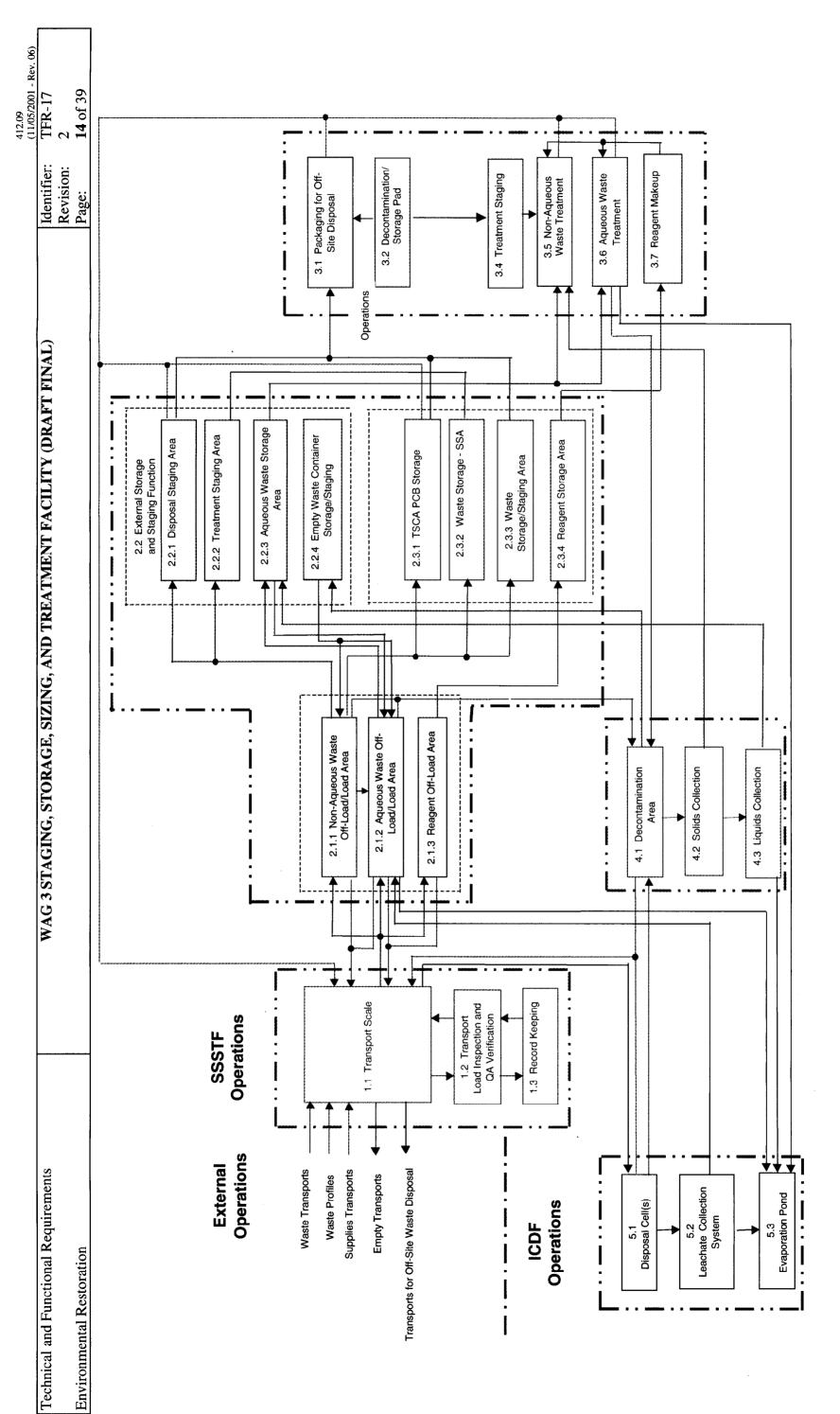


Figure 2.1-1. SSSTF/ICDF Complex functional block flow diagram.

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### 2.1.2 Staging and Storage Function

The staging and storage function will provide the capabilities for off-loading and/or on-loading of waste and supplies and staging waste for treatment and/or disposal.

### SSA Staging and Storage

The SSA will be provided to facilitate staging and storage of waste prior to the SSSTF/ICDF Complex becoming operational. Upon the ICDF Complex RA Work Plan being finalized, the SSA will be operational under the requirements and processes of the ICDF RA Work Plan. The primary mission of this area will be to store existing boxes of soil and other debris from previous remediation activities, as well as provide for staging and storage of other solid and/or liquid waste determined necessary by DOE.

### Off-Loading/On-Loading

The staging and storage function will provide the capability to off-load solid waste from either bulk transport vehicles or roll-on/roll-off containers, unload and transfer either liquid tanker vehicles or liquid waste containers, and unload either bulk and/or prepackaged reagent containers. Likewise, this function will provide the capability to load and/or transfer both solid and liquid waste for final disposition or waste containers to be used elsewhere to support overall operations. These activities will typically take place on one of the storage slabs, but can be performed anywhere inside the perimeter fence as needed.

### Staging and Storage

The staging and storage function will meet RCRA and TSCA staging and storage requirements that provide for hazardous waste control. A location for storage of PCB-contaminated wastes requiring PCB-compliant storage will be provided. It may be an internal area with a drip pan, 6-in. curb, and appropriate signage or a TSCA-compliant container unit at the SSA. The facility will include outdoor storage areas as required for various functions of the SSSTF process. Outdoor storage areas will accommodate, as a minimum, the storage of empty waste transportation containers.

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The staging and storage function will provide a staging area for CERCLA remediation waste. This area will be used to stage incoming waste that does not comply with the ICDF landfill WAC. The staged waste will be placed in a queue and transferred to the treatment process as needed. Waste that cannot be treated to the ICDF landfill WAC with the available treatment processes will be moved into storage on the contaminated equipment pad or another suitable location. The staging area will provide space for waste that has been treated and is waiting for analytical results prior to disposal. An area will be provided for water storage of CERCLA wastewater delivered from various WAGs. This water will be transferred to the ICDF evaporation pond.

### 2.1.3 Waste Treatment Function

The treatment function will stabilize, treat, or otherwise prepare INEEL CERCLA waste that does not meet the ICDF landfill WAC for final disposal in the ICDF landfill or for disposal at an off-Site disposal facility. Debris will be treated to meet the Debris Treatment Standard of 40 CFR 268.45 (c) 2, Table 1, for microencapsulation of debris.

All secondary wastes generated in the course of operating the SSSTF and ICDF will be collected. Secondary waste generated at the SSSTF will either be treated at the SSSTF (if required) and disposed of in the ICDF or packaged and sent off-Site for disposal.

An area will be provided to perform packaging of waste for off-Site disposal. Waste will be packaged in this area and loaded and transported to the facility for disposal.

### Stabilization Treatment

Stabilization refers to processes that involve chemical reactions that reduce the leachability of a waste. Stabilization chemically immobilizes hazardous materials or reduces their solubility through a chemical reaction. The physical nature of the waste may not be changed by this process.

The stabilization treatment function will contain the necessary equipment to formulate and mix the waste with reagents. The process may be implemented by a variety of systems and components but generally includes mixing and blending at some energy level to attain an adequate or defined level of homogeneity or consistency and material conveyance.

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This covers a wide range of actual equipment. Various combinations of additives and reagents may be utilized within the Portland cement process including, but not limited to, Portland cement/flyash, Portland cement/lime, Portland cement/flyash/blast furnace slag both air- and water-cooled, Portland cement/flyash/blast furnace slag/clay, etc. Actual combinations and recipe formulations are determined during treatability testing of the various soil types and the contaminants to be stabilized.

### 2.1.4 Decontamination Function

The decontamination function will be equipped with a high-pressure water sprayer for the decontamination of dump trucks, roll-on/roll-off containers, and waste delivery trucks, as well as other equipment used to support operations. If deemed necessary, the equipment and containers will be washed with a high-pressure water sprayer and checked for external radiological contamination for purposes of release from the ICDF Complex in accordance with the *INEEL Radiological Control* (*RadCon*) Manual (Radiological Control Department 2000).

### 2.1.5 Utilities

Raw water, potable water, fire water, sanitary sewer, telephone, alarm, and electrical service utilities will be installed to support the SSSTF. Each of these services will connect to a supply point inside the INTEC area except the electrical service, which will be connected to a power management service line outside the INTEC area. Each boundary and interface will be identified in the design drawing package.

Raw water will	provide water for	decontamination
	Raw water will	Raw water will provide water for

of waste delivery trucks and waste containers and

for treatment operations.

**Potable water** Potable water will provide water for approximately

15 personnel to use for drinking and washing.

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### Fire protection

Fire water will be used to supply the automatic fire sprinkler protection systems and the fire hydrants protecting the buildings and outside facilities. The buildings will include a fire alarm system that will be activated by manual fire alarm stations located at each exit connected to a fire alarm control panel. The fire alarm control panel will annunciate both an audible (standard fire alarm signal) and a visual strobe throughout the building indicating a local building evacuation. The fire alarm signal will be transmitted to the fire alarm center located at the Central Facilities Area (CFA) over telephone circuits using a digital alarm communicator transmitter (DACT) that will be connected to the existing digital alarm communication receiver (DACR).

The fire alarm system is also required to be activated by the sprinkler system water flow switch and the sprinkler system control valve tamper switches.

### Sanitary sewer

The sanitary sewer system will dispose of domestic sewage (see MCP-3480 for definition) from the occupied facilities. This system will not be used to dispose of any hazardous, industrial, or radioactive waste.

### **Communications**

Telephone and alarm systems will provide normal and emergency communications and emergency facility status, such as fire water sprinkler system flow, supervisory signal from the tamper switches on the control valves, and manual pull fire alarm activation. Computer network and data communication functions will also be provided. This task will provide the routing (duct bank and conduit) for the alarm and communication cables. The telephone wiring and the fiber optic cable will be installed in a later task.

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Electrical service

480 Vac and 240/120 Vac normal power will be provided for lighting and heat and for powering tools and other equipment used for operations and maintenance.

### 2.2 Staging, Storage, Sizing, and Treatment Facility Classification

The SSSTF is classified as a Radiological Facility, Low Hazard.

### 2.3 Operational Overview

The ICDF Complex will treat/dispose two types of waste: (1) waste generated from facility operations (i.e., landfill leachate, operational waste, etc.); and (2) waste brought into the facility from CERCLA operations. Waste meeting the ICDF Complex WAC will arrive at the SSSTF through a scale/monitoring station. Shipments will be verified and pertinent information entered into the ICDF Complex waste tracking system. Five categories of waste will be processed through the ICDF Complex: aqueous waste that already meets the ICDF evaporation pond WAC, aqueous waste that requires treatment, nonaqueous wastes for which a treatment process is not available, nonaqueous waste that already meets the ICDF landfill WAC, and nonaqueous waste requiring treatment prior to disposal.

Nonaqueous wastes already meeting the ICDF landfill WAC will be sent directly to the ICDF landfill for disposal. However, waste not meeting the ICDF landfill WAC will be treated at the SSSTF prior to disposal in the ICDF landfill. Furthermore, hazardous or mixed waste originating outside the WAG 3 AOC that require treatment to meet the ICDF landfill WAC will be treated at the SSSTF to comply with the ICDF landfill WAC prior to disposal. Waste that cannot be treated to meet the ICDF landfill WAC may be packaged and disposed off-Site.

Aqueous waste will be transferred directly to the ICDF evaporation pond, will be transferred to storage tanks, or may be used in the stabilization process. Aqueous waste that does not meet the ICDF evaporation pond WAC will either be treated or disposed off-Site.

Waste requiring treatment will be staged until delivered to a treatment process on an as-needed basis. Waste-laden roll-on/roll-off containers and prepackaged waste will be transported from the staging function to the treatment function. Following successful waste treatment, the waste will again undergo weighing and verification before disposal in the ICDF landfill.

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### 3. REQUIREMENTS AND BASES

### 3.1 Functional and Performance Requirements

### 3.1.1 SSSTF System Level Requirements

Rqmt ID: 001 Rqmt Classification: Environmental

Rqmt Text: The SSSTF shall accept on-Site INEEL CERCLA remediation waste as defined in the CWID for either storage, treatment, and/or disposal.

Rqmt Basis: Provide for removal and on-Site disposal of wastes that have the potential to expose workers and public to radionuclide contamination.

Rqmt Reference: (1) OU 3-13 ROD, Section 11.1.3 (DOE-ID 1999)

(2) RD/RA Scope of Work for WAG 3 OU 3-13, Section 1.3.3

(DOE/ID 2000b)

(3) Table 1.6-1, Assumption T.

Rqmt ID: 002 Rqmt Classification: Environmental

Rqmt Text: Wastes transferred from the SSSTF to the ICDF landfill or evaporation pond for disposal shall meet Agency-approved ICDF landfill or evaporation pond WAC as appropriate.

Rqmt Basis: Provide for removal and on-Site disposal of wastes that have the potential to expose workers and public to radionuclide contamination.

Rqmt Reference: (1) OU 3-13 ROD, Section 11.1.3 (DOE-ID 1999)

(2) RD/RA Scope of Work for WAG 3 OU 3-13, Section 1.3.3

(DOE/ID 2000b)

(3) Table 1.6-1, Assumptions G and N.

Rqmt ID: 005 Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF shall have a design life of 30 years for the decon/treatment facility and 10 years for the administration facility.

Rqmt Basis: Based on typical DOE practices.

Rqmt Reference: Table 1.6-1, Assumption V.

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Rqmt ID: 029 Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF shall be designed to store and handle non-contact waste.

Rqmt Basis: To meet the Environmental Restoration (ER) Program mission and dispose of the waste defined in the ROD.

Rqmt Reference: Table 1.6-1, Assumptions D and T.

### 3.1.2 SSSTF Major Function Requirements

### 3.1.2.1 Administrative Function

Rqmt ID: 006 Rqmt Classification: Mission Critical

Rqmt Text: The Administrative Function shall have the capability to receive and process up to 44 loads with up to 13 yd<sup>3</sup> per load of incoming waste within a work shift.

Rqmt Basis: This requirement defines the administrative throughput capability of processing incoming waste trucks through the facility based on expected inventory quantities and operation schedule.

Rqmt Reference: Table 1.6-1, Assumption T.

Rgmt ID: 016 Rgmt Classification: Mission Critical

Rqmt Text: The Administrative Function shall provide office and crew quarter space in which 15 personnel can perform their daily tasks in an environment that complies with applicable regulations.

Rqmt Basis: The total space is based on the estimated number of personnel that will be required to operate the treatment and storage process as well as administer and support these operations.

Rqmt Reference: (1) OU 3-13 ROD, Section 11.1.3 (DOE-ID 1999)

(2) Facility requirement imposed via RD/RA Scope of Work for

WAG 3 OU 3-13, Section 4.3.3.4 (DOE/ID 2000b)

(3) Table 1.6-1, Assumption T.

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Rqmt ID: 007

Rqmt Classification: Other

Rqmt Text: The Administrative Function shall have the capability to determine the weight of the waste vehicle being processed to within 0.1% accuracy at full scale of 60 tons.

Rqmt Basis: To comply with landfill standards for cell location and cell content. Trucks are paid on a per 100-lb basis.

Rqmt Reference: (1) 40 CFR 264.309 (a) and (b)

(2) 40 CFR 264.73.

Rqmt ID: 009

Rqmt Classification: Other

Rqmt Text: The Administrative Function shall provide the capability to maintain waste processing and disposal records in accordance with 40 CFR 264.309(a) and (b).

Rqmt Basis: To comply with landfill standards for cell location and cell content.

Rqmt Reference: Table 12-3 of OU 3-13 ROD (DOE-ID 1999).

Rgmt ID: 034

Rqmt Classification: Other

Rqmt Text: The Administrative Function shall provide the capability to perform load verification and QA verification of the load profile.

Rqmt Basis: To comply with quality assurance guidelines and regulations.

Rqmt Reference: Table 1.6-1, Assumption J, K, L, and M.

### 3.1.2.2 Staging and Storage Function

### 3.1.2.2.1 Off-Load/Load Function

Rqmt ID: 035

Rqmt Classification: Mission Critical

Rqmt Text: The off-load/load function shall provide the capability to off-load and/or load nonaqueous waste from bulk transfer vehicles, roll-on/roll-off containers, or other containers and place in staging or storage.

Rqmt Basis: The facility needs the flexibility to support various types of material transport methods.

Rqmt Reference: Table 1.6-1, Assumption E.

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Rqmt ID:

037

Rqmt Classification: Mission Critical

Rqmt Text: The off-load/load function shall provide the capability to off-load bulk or prepackaged operational supplies and place in storage.

Rqmt Basis: The facility needs the flexibility to support various types of transport methods.

Rqmt Reference: Project-derived requirement.

#### 3.1.2.2.2 **External Staging/Storage Function**

Rqmt ID: 010 Rqmt Classification: Mission Critical

Rqmt Text: The external staging/storage function shall provide 7483 ft<sup>2</sup> of external staging areas for nonaqueous waste.

Rqmt Basis: The SSSTF will serve as the receiving area for CERCLA wastes prior to treatment and/or disposal in the ICDF.

- Rqmt Reference: (1) OU 3-13 ROD, Section 11.1.3 (DOE-ID 1999)
  - (2) RD/RA Scope of Work for WAG 3 OU 3-13, Section 4.3.3.5

(DOE/ID 2000b)

(3) Table 1.6-1, Assumption T.

Rqmt ID:

039

Rqmt Classification: Mission Critical

Rqmt Text: The external staging/storage function shall provide for 6448 ft<sup>2</sup> of external storage area(s) for empty waste containers.

Rqmt Basis: To support typical radiological facility decontamination operations. The storage pad is required to hold twenty 13-yd<sup>3</sup> roll-on/roll-off containers.

Rqmt Reference: Table 1.6-1, Assumption T.

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### 3.1.2.2.3 Internal Staging/Storage Function

The utilization of SSSTF facilities for staging and/or storage may be advantageous from an operational perspective. Specific design requirements for the utilization of these facilities are not specified. For example, floor space in the treatment facility may be utilized for internal waste storage, staging, or packaging, assuming adequate administrative controls.

Rqmt ID: 012 Rqmt Classification: Mission Critical

Rqmt Text: The internal staging/storage function shall provide 300 ft<sup>3</sup> of covered RCRA/TSCA/435.1-compliant (but not permitted) storage space for waste to be utilized until treatment and/or disposal of waste can be achieved.

Rqmt Basis: The SSSTF will serve as the receiving area for wastes received from WAG 3 and other WAGs prior to disposal of the waste in the ICDF. The number defined is a result of work performed in EDF-1545, "SSSTF Waste Storage and Staging."

Rqmt Reference: (1) OU 3-13 ROD, Section 11.1.3 (DOE-ID 1999)

(2) RD/RA Scope of Work for WAG 3 OU 3-13, Section 4.3.3.5

(DOE/ID 2000b)

(3) Table 1.6-1, Assumption T.

### 3.1.2.3 Waste Treatment Function

Rgmt ID: 014 Rgmt Classification: Mission Critical

Rqmt Text: The waste treatment function may use limited quantities of monitoring well wastes, leachate, and other secondary liquid waste on a case-by-case basis for stabilization. The resulting waste must meet ICDF landfill WAC.

Rqmt Basis: To manage and treat liquid waste.

Rqmt Reference: (1) OU 3-13 ROD, Section 11.1.3 (DOE-ID 1999)

(2) RD/RA Scope of Work for WAG 3 OU 3-13, Section 1.3.3

(DOE/ID 2000b)

(3) Table 1.6-1, Assumption G.

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Rqmt ID:

015

Rqmt Classification: Mission Critical

Rqmt Text: The waste treatment function design shall be capable of treating at least 10 yd<sup>3</sup> of CERCLA remediation waste per work shift.

Rqmt Basis: An analysis will be performed to establish/verify throughput requirements for the treatment process(s).

Rqmt Reference: Table 1.6-1, Assumption T.

Rqmt ID:

041

Rqmt Classification: Mission Critical

Rqmt Text: The waste treatment function shall provide the capability to perform reagent makeup to support treatment operations.

Rqmt Basis: The reagent makeup will be based on the Treatability Test Plan and shall be verified as necessary.

Rqmt Reference: Block flow diagram.

Rqmt ID:

043

Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF shall provide for storage of secondary waste.

Rqmt Basis: This volume is expected to be minimal due to the low volume of waste requiring treatment and handling based on ICDF Complex operations.

Rqmt Reference: Table 1.6-1, Assumptions G and T.

Rqmt ID:

044

Rqmt Classification: Mission Critical

Rqmt Text: The waste treatment function shall provide the capability to package waste not meeting ICDF landfill WAC for off-Site disposal in accordance with the Off-Site Rule.

Rqmt Basis: To support typical radiological facility operations.

Rqmt Reference: Table 1.6-1, Assumptions G and F.

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#### 3.1.2.4 **Decontamination Function**

Rqmt ID:

045

Rqmt Classification: Mission Critical

Rgmt Text: The decontamination function shall provide the capability to perform decontamination of transfer vehicles, containers, and operations equipment.

Rqmt Basis: To support typical radiological facility operations.

Rgmt Reference: OU 3-13 ROD (DOE-ID 1999).

Rqmt ID:

046

Rqmt Classification: Mission Critical

Rqmt Text: The decontamination function shall provide the capability to segregate and collect nonaqueous waste generated in the decontamination process.

Rqmt Basis: To support typical radiological facility operations.

Rqmt Reference: OU 3-13 ROD (DOE-ID 1999).

Rqmt ID:

047

Rqmt Classification: Mission Critical

Rqmt Text: Liquid waste generated from the decontamination process shall be transferred directly to the evaporation pond.

Rqmt Basis: To support typical radiological facility operations.

Rgmt Reference: OU 3-13 ROD (DOE-ID 1999).

#### 3.1.3 **Boundaries and Interfaces**

Rqmt ID:

017

Rqmt Classification: Environmental

Rqmt Text: All SSSTF activities shall take place within the WAG 3 AOC per Figure 1-10 of OU 3-13 ROD (DOE-ID 1999).

Rqmt Basis: To allow flexibility in managing the consolidation and remediation of wastes without triggering LDRs and other RCRA requirements.

Rqmt Reference: OU 3-13 ROD, Page 1-12 (DOE-ID 1999).

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### 3.1.4 Codes, Standards and Regulations

Rqmt ID:

025

Rqmt Classification: Safety Significant

Rqmt Text: The SSSTF shall be constructed and operated in accordance with the substantive requirements of applicable regulations as defined in Table 3.1-1, SSSTF compliance with ARARs.

Rqmt Basis: The ROD requires facility construction and operation to be in accordance with applicable codes and regulations.

Rqmt Reference: OU 3-13 ROD, Table 12-3 (DOE-ID 1999).

Table 3.1-1. SSSTF compliance with ARARs.

Alternative/ARARs Citation	Description	Compliance Reference
Action-specific		
IDAPA 16.01.01.650, 16.01.01.651	Idaho fugitive dust emissions	DOE/ID-10889, Sections 2.1.4.3.3 and 4.3.8
IDAPA 16.01.01.585 IDAPA 16.01.01.586	Rules for the control of air pollution in Idaho	Will be supplied in ICDF Complex 90% design
40 CFR 61.92 40 CFR 61.93	NESHAP for Radionuclides from DOE Facilities, Emission Monitoring and Emission Compliance	Will be supplied in ICDF Complex 90% design
40 CFR 122.26	Storm water discharges during construction	DOE/ID-10889, Sections 2.1.1.9, 3.1.1.4, 3.3.3, and 4.3.6.6, and Appendix
IDAPA 16.01.05.008 [40 CFR 264.14(a), (b), (c)]	Site security	DOE/ID-10889, Section 2.1.1.4
IDAPA 16.01.05.008 [40 CFR 264.16(a)(1),(c)]	Personnel training	DOE/ID-10859, Section 8
IDAPA 16.01.05.008 (40 CFR 264.114)	Disposal and decontamination of equipment, structures, and soils	To be addressed in ICDF Complex RA Work Plan

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Table 3.1-1. (continued).

Alternative/ARARs Citation	Description	Compliance Reference
40 CFR 761.79(a) and (b)	PCB container and moveable equipment decontamination requirements	Not expected to enter SSSTF
IDAPA 16.01.05.008 (40 CFR 264.192)	Design and installation of new tank systems or components	DOE/ID-10889, Section 2.1.3.8
IDAPA 16.01.05.008 (40 CFR 264, Subpart I)	Use and management of containers	DOE/ID-10881, Section 5.5
IDAPA 16.01.05.008 (40 CFR 264, Subpart DD)	Containment buildings	DOE/ID-10889, Section 3.3.1.1
IDAPA 16.01.05.008 (40 CFR 264.1052 through 1062)	Air emissions standards for equipment leaks	NA - No organic concentrations >10% by weight
IDAPA 16.01.05.008 (40 CFR 264.1082 through 1088)	Air emission standards for tanks, surface impoundments, and containers	NA - 264.1080 (b)(3) CERCLA site
IDAPA 16.01.05.008 (40 CFR 264, Subpart F)	Releases from solid waste management units	Will be addressed in ICDF Complex 90% design
IDAPA 16.01.05.008 (40 CFR 264, Subpart G)	Closure and post-closure	To be addressed in ICDF Complex RA Work Plan
Chemical-specific		
IDAPA 16.01.05.005 (40 CFR 261.20 through 24)	Hazardous waste characteristics identification	DOE/ID-10881, Section 3.5
Location-specific		
16 USC 469 et seq. 36 CFR 65	National Archeological and Historical Preservation Act	Environmental Checklist
25 USC 3001	Native American Graves Protection and Repatriation Act	Environmental Checklist

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Table 3.1-1. (continued).

Alternative/ARARs Citation	Description	Compliance Reference
Action-specific		
IDAPA 16.01.05.011 (40 CFR 268)	Land disposal restrictions	DOE/ID-10881, Section 1
IDAPA 16.01.05.011 (40 CFR 268.49)	Alternative land disposal restrictions treatment standards for contaminated soil	DOE/ID-10881, Section 2.4.4
Chemical-specific		
IDAPA 16.01.05.005 (40 CFR 261)	Identification and listing of hazardous waste	DOE/ID-10881, Section 3.5
IDAPA 16.01.05.006 (40 CFR 262.11)	Hazardous waste determination	DOE/ID-10881, Section 3.5
40 CFR 761.50(b)(3)	PCB remediation waste	DOE/ID-10865, Section 5.1.2
40 CFR 761.50(b)(7)	PCB radioactive waste	DOE/ID-10865, Section 5.1.2
40 CFR 761.50(b)(8)	Porous surfaces	DOE/ID-10865, Section 5.1.2

Rqmt ID: 026

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be designed in accordance with the substantive requirements of other design standards as defined in Table 3.1-2, Other design standards.

Rqmt Basis: Required by contract with the DOE.

Rqmt Reference: BBWI Management and Operations Contract for the INEEL.

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Table 3.1-2. Other design standards.

Alternative/ARARs Citation	Description	Applies To	Imposed By
10 CFR 835	Occupational radiation protection	Workers	ROD, Page 11-3
40 CFR 300.440	Off-Site Rule	Waste locations	ROD, Page 11-15
DOE Order 5007.6C	Quality assurance	Waste acceptance	FFA/CO, Section xvi
DOE – ID Architectural Engineering Standards		Constructions	DOE Contract
29 CFR 1910.120	Hazard communication	Workers	DOE Contract
29 CFR 1926	Safety and health regulations for construction	Workers	DOE Contract

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#### 3.1.5 **Operability**

Ramt ID:

027

Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF and evaporation ponds shall be designed to be operated year round. The ICDF landfill will normally be operated from March to November.

Rqmt Basis: To reduce the complexity associated with operating the landfill and evaporation pond through winter months.

Rqmt Reference: Table 1.6-1, Assumption F.

Rqmt ID: 028 Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF shall be designed to allow operating on a 10-hr shift, 4 days per week.

Rqmt Basis: To reduce operational complexity by maintaining compatibility with other Site operations.

Rqmt Reference: Table 1.6-1, Assumption I.

Rqmt ID:

Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF shall be designed for year round acceptance of waste for storage or off-Site disposal.

Rqmt Basis: To support expected operational needs.

Rqmt Reference: Table 1.6-1, Assumption F.

Rqmt ID: 049

Rqmt Classification: Mission Critical

Rqmt Text: The SSSTF shall be designed for year round waste monitoring and management operations.

Rqmt Basis: To support expected operational needs.

Rqmt Reference: Table 1.6-1, Assumption F.

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#### 3.2 **Special Requirements**

#### 3.2.1 Radiation and Other Hazards

Radiation and other hazard requirements are defined in regulations imposed in Table 3.1-1.

#### 3.2.2 **ALARA**

Rqmt ID: 052 Rqmt Classification: Safety

Rqmt Text: To comply with the as-low-as-reasonably-achievable (ALARA) program, the SSSTF shall be designed to limit personnel exposure (both internal and external) to a maximum of 500 mR/year.

Rqmt Basis: To support typical radiological facility operations.

- Rgmt Reference: (1) DOE Order 5400.5
  - (2) Table 1.6-1, Assumption T.

#### 3.2.3 **Nuclear Criticality Safety**

Not applicable based on the SSSTF classification of "Radiological Facility Low Hazard".

#### 3.2.4 **Industrial Hazards**

Industrial hazard requirements are defined in regulations imposed in Table 3.1-1.

#### 3.2.5 **Operating Environment and Natural Phenomena**

030 Ramt ID:

Rqmt Classification: Safety Significant

Rqmt Text: With respect to natural phenomena hazards (NPH) (seismic, wind, and flood), the SSSTF shall be categorized as Performance Category PC-1 as defined by DOE-STD-1020 and DOE-STD-1021.

Rqmt Basis: Required constraint for a facility where NPH-caused failure could result in loss of function for hazardous material recovery, as well as possible release of radioactive and toxic materials. The classification defined is a result of work performed in EDF-1546, "Preliminary Hazard Classification Analysis."

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Rqmt Reference: (1) DOE-STD-1020

(2) DOE-STD-1021.

Rqmt ID: 033

Rqmt Classification: Environmental

Rqmt Text: The SSSTF shall be constructed outside of the area designated in the ROD as the 100-yr floodplain.

Rqmt Basis: The ROD stipulates that the ICDF landfill will be located outside of the 100-yr floodplain. Optimal location of the SSSTF is adjacent to the landfill, thus this requirement applies to the SSSTF as well.

Rqmt Reference: OU 3-13 ROD, Page 11-18, Figure 5-1, Page 5-2 (DOE-ID 1999).

### 3.2.6 Human Interface Requirements

No human interface requirements have been identified.

### **3.2.7** Specific Commitments

No specific commitment requirements have been identified.

### 3.3 Engineering Design Requirements

### 3.3.1 Civil and Structural

Rqmt ID: 018

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be equipped with fire water for both automatic sprinklers and fire hydrants.

Rqmt Basis: To support typical operations.

Rgmt Reference: Table 1.6-1, Assumption R.

Rqmt ID: 019

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be equipped with telephone capabilities.

Rqmt Basis: To support typical operations.

Rqmt Reference: Table 1.6-1, Assumption R.

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Rqmt ID: 020

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be equipped with fire alarm capabilities.

Rqmt Basis: To support typical operations.

Rqmt Reference: Table 1.6-1, Assumption R.

Rqmt ID: 021

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be equipped with electrical power capabilities.

Rqmt Basis: To support typical operations.

Rqmt Reference: Table 1.6-1, Assumption R.

Rqmt ID:

023

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be equipped with potable water, raw water, and sewer connections.

Rqmt Basis: To support typical operations.

Rqmt Reference: Table 1.6-1, Assumption R.

Rqmt ID:

024

Rqmt Classification: Other

Rqmt Text: The SSSTF shall be equipped with computer network and data communication

functions.

Rqmt Basis: To support typical operations.

Rqmt Reference: Table 1.6-1, Assumption R.

### 3.3.2 Mechanical and Materials

No additional mechanical and materials requirements to those imposed by the *DOE-ID Architectural Engineering Standards* (DOE-ID 2001) have been identified.

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#### 3.3.3 **Chemical and Process**

Rqmt ID:

031

Rqmt Classification: Other

Rgmt Text: The waste treatment function shall be designed to accept wooden or metal containers,  $2 \times 4 \times 8$  ft in size, for soil and in  $4 \times 4 \times 8$  ft size for debris.

Rgmt Basis: To simplify operational concept for anticipated waste treatment.

Rgmt Reference: OU 3-13 ROD, Table 4-1 (DOE-ID 1999).

#### 3.3.4 **Electrical Power**

No additional electrical power requirements to those imposed by the DOE-ID Architectural Engineering Standards (DOE-ID 2001) have been identified.

#### 3.3.5 **Instrumentation and Control**

No additional instrumentation and control requirements to those imposed by the DOE-ID Architectural Engineering Standards (DOE-ID 2001) have been identified.

#### 3.3.6 **Computer Hardware and Software**

Computer hardware and software must be compatible with the Waste Tracking System (WTS) requirements.

#### 3.3.7 **Fire Protection**

Rqmt ID:

053

Rqmt Classification: Other

Rgmt Text: The facility must contain the fire water applied to the most remote 3500 ft<sup>2</sup> at a rate of 0.17 gal/ft<sup>2</sup> and a fire hose stream of 500 gal/min for a 30-min period.

Rgmt Basis: Fire water must be contained in the event of a fire.

Rqmt Reference: NFPA 801.

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### 3.4 Testing and Maintenance Requirements

### 3.4.1 Testability

Rqmt ID:

054

Rqmt Classification: Other

Rqmt Text: The underground fire water supply piping shall be flushed and hydrostatically tested.

Rqmt Basis: To ensure a clean and sealed system.

Rqmt Reference: NFPA 24.

### 3.4.2 Technical Safety Requirement-Related Surveillances

No Technical Safety Requirement (TSR) - related surveillance requirements have been identified.

### 3.4.3 Nontechnical Safety Requirement Inspections and Testing

No non-TSR inspection and testing requirements have been identified.

### 3.4.4 Maintenance

No maintenance requirements have been identified.

### 3.4.5 Other Requirements

No other requirements have been identified.

### 3.4.6 Security and Special Nuclear Material Protection

Security requirements are defined in regulations imposed in Table 3.1-1.

### 3.4.7 Special Installation Requirements

No special installation requirements have been identified.

### 3.4.8 Reliability, Availability, and Preferred Failure Modes

No reliability, availability, and preferred failure mode requirements have been identified.

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### 3.4.9 Quality Assurance

No additional quality assurance requirements to those imposed by the *DOE-ID Architectural Engineering Standards* (DOE-ID 2001) and applicable regulations have been identified. See Table 3.1-1 for imposed quality assurance regulations.

### 3.4.10 Miscellaneous

No miscellaneous requirements have been identified.

### 4. CODES, STANDARDS, REGULATIONS

10 CFR 61, 2000, "Licensing Requirements for Land Disposal of Radioactive Waste," *Code of Federal Regulations*, Office of the Federal Register, January 2000.

40 CFR 191, 2000, Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes, *Code of Federal Regulations*, Office of the Federal Register, July 2000.

40 CFR 264.73, 2000, "Operating record," *Code of Federal Regulations*, Office of the Federal Register, July 2000.

40 CFR 264.309, 2000, "Surveying and recordkeeping," *Code of Federal Regulations*, Office of the Federal Register, July 2000.

40 CFR 268.45, 2000, "Treatment standards for hazardous debris," *Code of Federal Regulations*, Office of the Federal Register, July 2000.

40 CFR 268.48, 2000, "Universal Treatment Standards," *Code of Federal Regulations*, Office of the Federal Register, July 2000.

40 CFR 300.440, "Procedures for planning and implementing off-site response actions," *Code of Federal Regulations*, Office of the Federal Register, July 2000.

15 USC 2601 et seq., 1976, "Toxic Substances Control Act," United States Code.

42 USC 6921 et seq., Subtitle C, 1976, "Hazardous Waste Management," *Resource Conservation and Recovery Act of 1976*, as amended.

DOE O 435.1, Change Notice 1, 2001, "Radioactive Waste Management," U.S. Department of Energy, August 28, 2001.

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DOE O 5400.5, Change Notice 2, 1993, "Radiation Protection of the Public and the Environment," U.S. Department of Energy, January 7, 1993.

DOE-ID, 1997, Comprehensive RI/FS for the Idaho Chemical Processing Plant OU 3-13 at the INEEL—Part B, FS Report (Final), DOE/ID-10572, Rev. 0, Department of Energy Idaho Operations Office, November 1997.

DOE-ID, 1999, Final Record of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13, DOE/ID-10660, Rev. 0, Department of Energy Idaho Operations Office, October 1999.

DOE-ID, 2000a, CERCLA Waste Inventory Database Report for the Operable Unit 3-13 Waste Disposal Complex, DOE/ID-10803, Rev 0, Department of Energy Idaho Operations Office, December 2000.

DOE-ID, 2000b, Remedial Design/Remedial Action Scope of Work for Waste Area Group 3, Operable Unit 3-13, DOE/ID-10721, Rev. 1, Department of Energy Idaho Operations Office, February 2000.

DOE-ID, 2001, *DOE-ID Architectural Engineering Standards*, Rev. 28, Department of Energy Idaho Operations Office, Idaho Falls, Idaho, November 2001.

DOE-STD-1020-94, Change Notice 1, 1996, "Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities," U.S. Department of Energy, January 1996.

DOE-STD-1021-93, Change Notice 1, 1996, "Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components," U.S. Department of Energy, January 1996.

EDF-1545, 2001, "Staging, Storage, Sizing, and Treatment Facility (SSSTF) Waste Staging and Storage Criteria," Rev. 0, Environmental Restoration Program, Idaho National Engineering and Environmental Laboratory, January 2001.

EDF-1546, 2001, "Staging, Storage, Sizing, and Treatment Facility (SSSTF) Preliminary Hazard Classification Analysis," Rev. 0, Environmental Restoration Program, Idaho National Engineering and Environmental Laboratory, January 2001.

EDF-ER-264, 2001, "INEEL CERCLA Disposal Facility Design Inventory," Rev. 0, Environmental Restoration Program, Idaho National Engineering and Environmental Laboratory, July 2001.

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HWMA, 1983, "Hazardous Waste Management Act of 1983," Idaho Code Sections 39–4401 et seq.

MCP-3480, 2001, "Environmental Instructions for Facilities, Processes, Materials, and Equipment," Rev. 6, Environmental Affairs, Idaho National Engineering and Environmental Laboratory, June 2001.

NFPA 24, 1995, "Standard for the Installation of Private Fire Service Mains and Their Appurtenances," National Fire Protection Association, August 11, 1995.

NFPA 801, 1998, "Standard for Fire Protection for Facilities Handling Radioactive Materials," National Fire Protection Association, February 6, 1998.

Radiological Control Department, 2000, *Manual 15A - Radiation Protection - INEEL Radiological Control Manual*, Rev. 6, PRD-183, Idaho National Engineering and Environmental Laboratory, Bechtel BWXT Idaho, LLC, Idaho Falls, Idaho, July 2000.

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## **T&FR Requirement Change Log**

The following table provides a summary of changes to the requirements in this document.

Req#	Rqmt History	T&FR Rev	Change Justification
001	Modified	6/27/00	CDR comment
002	Initial release	4/26/00	
	Modified	8/6/01	Review comment
003	Deleted	6/5/00	CDR comment
004	Modified	6/5/00	CDR comment
	Deleted	10/23/00	PDR ORB review
005	Modified	6/5/00	CDR comment
	Modified	6/26/01	The design life has been
	Modified	8/6/01	clarified.
006	Modified	6/27/00	CDR comment
	Modified	6/26/01	Reduced quantities of waste will be received and processed in Phase 1.
007	Modified	6/27/00	CDR comment
		8/6/01	Review comment
008	Deleted	6/5/00	CDR comment
009	Modified	6/27/00	CDR comment
010	Modified	6/27/00	CDR comment
	Modified	10/23/00	PDR ORB review
	Modified	6/26/01	The contaminated equipment
	Modified	8/6/01	pad is approximately 7483 ft <sup>2</sup> and will be used for staging of nonaqueous waste based on EDF-264.
011	Deleted	6/5/00	CDR comment

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012	Modified	6/27/00	CDR comment
	Modified	10/23/00	PDR ORB review
	Modified	6/26/01	Not applicable to Phase 1
013	Modified	6/27//00	CDR comment
	Modified	6/26/01	Not applicable to Phase 1
	Deleted	8/6/01	Not applicable to Phase 1
014	Modified	6/27/00	CDR comment
	Modified	6/26/01	Limited quantities of liquid
	Modified	8/6/01	wastes will be treated on a case-by-case basis.
		<u>-</u>	Review comment
015	Modified	6/27/00	CDR comment
	Modified	6/26/01	The waste treatment process
	Modified	8/6/01	shall be capable of treating at least 10 yd <sup>3</sup> of CERCLA remediation waste per shift.
016	Modified	6/5/00	CDR comment
017	Initial Release	4/26/00	
018	Modified	6/27/00	CDR comment
019	Modified	6/27/00	CDR comment
020	Modified	6/27/00	CDR comment
021	Modified	6/27/00	CDR comment
022	Modified	6/27/00	CDR comment
	Modified	6/26/01	Not applicable to Phase 1
023	Modified	6/27/00	CDR comment
024	Modified	6/27/00	CDR comment
025	Initial Release	4/26/00	
	Table Modified	6/27/00	CDR comment
026	Modified	6/27/00	CDR comment

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027	Modified	6/27/00	CDR comment
	Modified	6/26/01	The SSSTF will be operated year round.
028	Initial Release	4/26/00	
029	Modified	6/27/00	CDR comment
	Deleted	6/26/01	Not applicable to Phase 1
	Restored	8/06/01	ORB review
030	Modified	6/27/00	CDR comment
031	Modified	6/27/00	CDR comment
	Modified	10/23/00	PDR ORB review
032	Deleted	6/27/00	CDR comment
033	Modified	6/27/00	CDR comment
034	Modified	6/27/00	CDR comment
035	Modified	6/27/00	CDR comment_
036	Modified	6/27/00	CDR comment
	Deleted	10/23/00	PDR ORB review
037	Added	6/5/00	Block flow diagram
038	Added	6/5/00	Block flow diagram
	Deleted	10/23/00	PDR ORB review
039	Added	6/5/00	Block flow diagram
040	Modified	6/27/00	CDR comment
	Deleted	10/23/00	PDR ORB review
041	Added	6/5/00	Block flow diagram
042	Deleted	6/27/00	CDR comment
043	Added	6/5/00	Block flow diagram
	Modified	6/26/01	Not applicable to Phase 1
	Modified	8/6/01	Review comment
044	Modified	6/27/00	CDR comment
045	Modified	6/27/00	CDR comment

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046	Modified	6/27/00	CDR comment
047	Added	6/5/00	Block flow diagram
	Modified	6/26/01	Liquid waste generated during the decontamination process will be transferred directly to the evaporation pond.
048	Modified	6/27/00	CDR comment
049	Modified	6/27/00	CDR comment
050	Deleted	6/27/00	CDR comment
051	Deleted	6/27/00	CDR comment
052	Deleted Restored	6/27/00 8/06/01	CDR comment ORB comment
053	Added Modified	6/26/01 8/6/01	Review comment Review comment
054	Added	6/26/01	Review comment